



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,982	11/24/2003	Oh-Hun Kwon	1035-PM4269-US	3403

34456 7590 08/24/2006

LARSON NEWMAN ABEL
POLANSKY & WHITE, LLP
5914 WEST COURTYARD DRIVE
SUITE 200
AUSTIN, TX 78730

EXAMINER

SAMPLE, DAVID R

ART UNIT PAPER NUMBER

1755

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,982

Applicant(s)

KWON ET AL.

Examiner

David Sample

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-64 is/are pending in the application.
- 4a) Of the above claim(s) 36-64 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20050804;20041025</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-35, drawn to a ceramic, classified in class 501, subclass 127.
- II. Claims 36-60, drawn to a method of making an ESD safe ceramic, classified in class 264, subclass 109.
- III. Claims 61-64, drawn to a method of bonding a microelectronic device, classified in class 438, subclass 118.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by a materially different process such as sol gel processing.

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case, the product claimed can be used in a materially different process of using that product such as a refractory for use in steel making.

Inventions II and III are directed to related processes. The related inventions are distinct if the inventions as claimed do not overlap in scope, i.e., are mutually exclusive; the inventions

Art Unit: 1755

as claimed are not obvious variants; and the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect. See MPEP § 806.05(j). In the instant case, the inventions have different functions and modes of operation. The invention of group II is directed to making a ceramic whereas the invention of group III is directed to making a semiconductor.

During a telephone conversation with Jefferey Abel on July 24, 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-35. Claims 36-64 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8 and 13-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Schaefer et al. (US Patent No. 6,872,676 B).

Schaefer et al. discloses an ESD safe ceramic containing stabilized zirconia, aluminum oxide and a conductive material. See the abstract, and col. 2, lines 20-26. The zirconia is predominately in the cubic and tetragonal form. See col. 4, lines 5-10.

As to claim 2, Schaefer et al. discloses a ceramic containing 75 wt% ZrO_2 , 10 wt% Al_2O_3 , and 15 wt% Fe_2O_3 . See col. 6, lines 30-35. Assuming a densities of 5.18, 3.7 and 5.7 g/cc for Fe_2O_3 , Al_2O_3 and ZrO_2 , respectively, the examiner calculates that the cited ceramic has a composition of 70.2 vol.% ZrO_2 , 14.4 vol.% Al_2O_3 , and 15.4 vol.% Fe_2O_3 . This amount of Fe_2O_3 anticipates the amount recited in claim 2.

The recitations of claims 3-8 can be found in the reference at col. 4, line 59 to col. 5, line 10 and col. 6, lines 30-35.

The recitations of claims 13-16 can be found in the reference at col. 4, lines 5-10.

The recitations of claims 17-19 can be found in the reference at col. 3, lines 50-68.

The recitations of claim 20 can be found in the reference in Figure 1. Note that an elastic modulus (i.e., Young's Modulus) of 40×10^6 psi corresponds to 276 GPa.

The recitations of instant claim 21 can be found in the reference in Figure 1 and col. 2, lines 61-62 in view of the latitude in interpreting the word "about" in claims.

The property recited in claim 22-25 and 30-32 are presumed to be inherent to the composition of Schaefer et al. because the composition of Schaefer et al. is identical to the presently claimed composition. See MPEP 2112.

Art Unit: 1755

The limitations of instant claim 26 can be found in the reference at col. 3, line 44.

The limitations of instant claim 27, 34 and 35 can be found in the reference at col. 5, lines 50-64.

The limitations of instant claims 28 and 29 can be found in the reference at col. 2, lines 61-62.

Claims 1-6, 9-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Burger et al. (US Patent No. 5,830,816).

Burger et al. discloses a ceramic containing greater than 70 vol% Al_2O_3 , 2-30 vol.% ZrO_2 and 2-25 vol.% of a carbide, nitride or carbonitride (i.e., a conductive material). See the abstract, and col. 4, lines 59-65.

The reference does not disclose that the ceramic is “ESD safe,” however, this recitation is a material property, and the ceramic of Burger et al. is identical to the presently claimed ceramic. Accordingly, the ceramic of Burger et al. is presumed to inherently be “ESD safe.”

As to the requirement that the material is a “ceramic component,” Burger et al. discloses that the material is a ceramic cutting insert. See col. 3, lines 45-46.

The ranges of components taught by Burger et al. are sufficiently specific to anticipate the ranges of components recited in instant claims 2 and 9-12.

The limitations of claims 3-6 are met by the reference disclosure that the ceramic should contain a Group IVB or VB carbide. See col. 4, lines 60-65.

The limitations of instant claims 14-19 can be found in Burger et al. at col.4, lines 18-30.

As to claim 20, Burger et al. discloses that the ceramic has an Elastic Modulus (i.e., Young's Modulus) in excess of 230 GPa. See Table 2, col's 9-10.

The properties recited in instant claims 21, 22 and 28-32 are presumed to be inherent to the ceramic of Burger et al. because the ceramic of Burger et al. is identical to the presently claimed material. See MPEP 2112.

The limitations of claims 23 to 25 can be found in Table 2, col's 9-10 ("D" indicates theoretical density in Burger et al.).

Burger et al. does not specifically disclose that the ceramic is a "ceramic bonding tool" as recited in claims 33-35. However, it is the examiner's position that material of Burger et al. is capable of being used in such processes, as the limitation "bonding tool" does not appear to imply any structure.

Conclusion

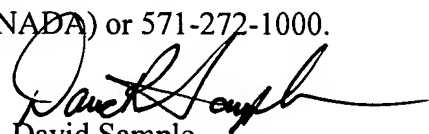
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Sample whose telephone number is (571)272-1376. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (572)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1755

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David Sample
Primary Examiner
Art Unit 1755